Behavioral Influences Analysis Workflow Example

"Analyze to Understand; Assess to Influence"

Greg Jannarone, Director

Behavioral Influences Analysis Center, Maxwell AFB

http://www.au.af.mil/bia/

UNCLASSIFIED

Data requirements:

1. Textual/narrative materials: e.g., academic studies, ethnologies, observer/participant immersion descriptions, operational and intelligence reporting, translations of native language literature/religious texts/mythology/genealogy, etc.

2. Audio/video interviews, news media clips, etc.

Tools: automated text extraction, data mining, database management, e.g., ATEA, AUTOMAP, ACCESS databases, EXCEL spreadsheets,

Structure/objective: Relational database; taxonomy

Data requirements:

1. Intelligence, media, and OSINT reporting of individual's/group's activities of interest/concern (typically assaults, attacks, kidnaps/hostages, sniping, riots, bombings, subversion, assassinations...)

2. Organizational changes or reorientations: leaders, goals, membership recruitment/selection, growth, relocation, adopting cellular structure, etc.

Tools: SEAS, time-event-location traces, WEBTAS

Structure/objective: graphical/visual portrayal of known activities and discernible patterns

Data requirements:

1. Public statements, demarches, press releases, internal guidance documents, and written verbal, or behavioral reactions to U.S./allied/other actions

2. Interrogations, defector interviews, third-party access reports, back-channel diplomatic work

Tools: Cultural awareness simulators, AI agent-based modeling, cognitive task assessment, kinesics/oculesics assessment

Structure/objective: baseline assessment of adversary's current appreciation of situation, our intention, 'next'

MOTIVATIONS

Data requirements:

1. Statements of needs, grievances, insults, vengeance, goals, "purpose/cause/calling/duty"

2. Past targets, actions, rationale, "justification"

Tools: Values-Motivations constructs (Schwartz, Maslow, VFT, etc.), ORA, preliminary use of Bayesian belief network tools, e.g., PYTHIA, JCAT, SIAM

Structure/objective: preliminary assessment of behavioral antecedents currently in play; basis for capabilities-capacity-intention judgments

Data requirements:

1. Order of Battle/General Military Intelligence (OB/GMI); S&T analysis of weapons/systems; manpower/readiness & morale; C4/ISR traditional and unconventional; leaders/plans

2. Supporters, sponsors, allies, collaborators

Tools: Spreadsheets, principal component analysis, ORA, DYNET, MATLAB (SIMULINK), SNA tools (NET MINER, ORA/DYNET, UCINET, others)

Structure/objective: data analysis of raw, available capabilities; initial assessment of capacity and readiness

SITUATIONAL FACTORS

Data requirements:

1. Current intelligence reporting on actor(s), operational environment, recent activities, readiness, and pre-determined "indicators"

2. Existence of attractive targets, locations, and opportunities, and time-sensitive elements

3. Tools: IPB methods, multi-layer (graphical) assessment, imagery exploitation

Structure/objective: visual representation for simulating adversary pre-decisional context

Core Questions

WHO ?

...is the adversary, in terms of his motivations and "behavioral history"?

WHY ?

...[wil]l an adversary or competitor choose to oppose us?

HOW LIKELY ?

...is the adversary to select any one of the behaviors   (courses of action) available to him?

Threat = Capability + Intent + Opportunity

Data requirements:

1. Decision style (e.g., single-actor, expert, heuristic, consensus/collaborative, rational actor, intuitive..), and key decision makers/supporters

2. Key sources of information -- available, accessed, trusted, and typically used (public, ISR-based, human, network provided…)

Tools: Game theoretic, multi-agent influence weighing, information processing simulation, ORA/DYNET, TEMPER, etc.

Structure/objective: basis for analysis of "next" decision, or decision of most interest/concern

KEY FACTORS FOR RESEARCH AND MODELING

PSYCHOLOGICAL

- perceptual pattern; cognitive style; decision making

ORGANIZATIONAL

operational code; cohesion; friction; structure; purpose/missio
member/leader selection; information processing; decision mak

CULTURAL

- language; ethnicity; religion; nationality

Analytical Workflow:
General to Specific
(Knowledge to Assessments)

Values, Beliefs, Worldview *(cultural anthropology/social psychology)*

Operational Behavioral History *(organizational dynamics)*
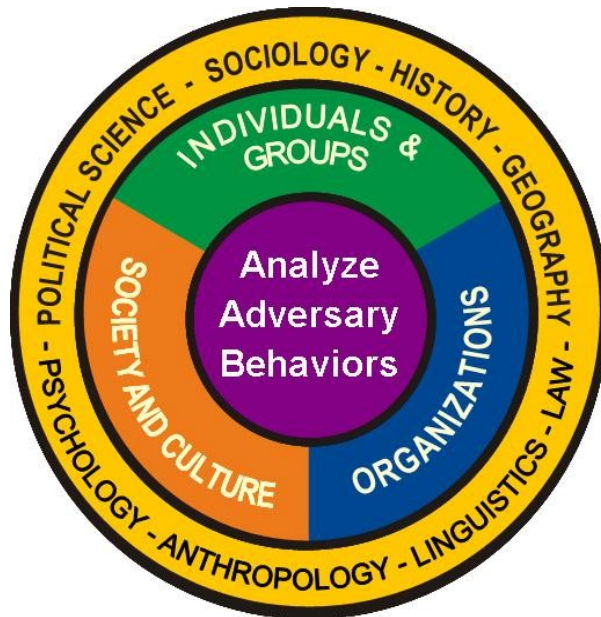
Perceptions

Motivations (Needs and Objectives)

...abilities

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...mmendations

Data requirements:

1. Current adversary situation (in IPB sense), motivational "update," and decision process outcomes (if/as knowable) or anomalies

2. "Guidance," directives, or orders from leaders, and/or across the organization/network; recent or new acquisitions of weapons, or other capabilities indicating tool-for-task behavior

Tools: Causal probability/Bayesian belief networks, SIAM, PYTHIA, JCAT, etc

Structure/objective: probabilistic assessment of adversary's desired actions, objective(s), and outcome

LIKELY BEHAVIOR

Data requirements:

1. Any available I&W changes or alerts; movements of forces, resources, or leaders

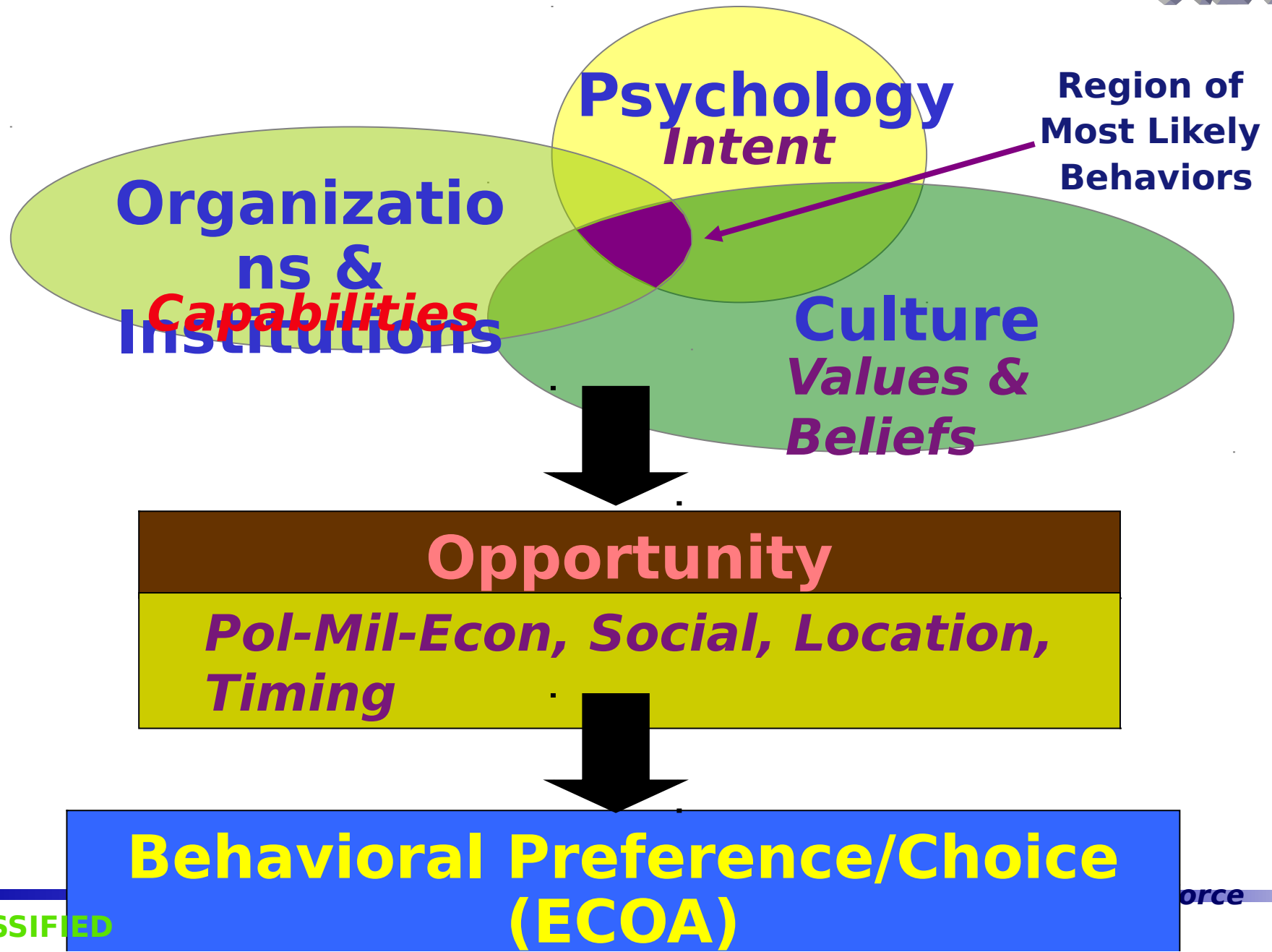2. Statements, supporter/sympathizer activities or reactions, atypical/diversionary behaviors

Tools: Causal probability/Bayesian network, SIAM, PYTHIA, JCAT, TEMPER, ORA, DYNET, adversary COA analysis/Red Team emulation

Structure/objective: probabilistic assessment of likelihood of any/each available, specific adversary COA being selected

BIA WORKFLOW

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(Knowledge to Assessments)

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Operational Behavioral History *(organizational dynamics)*

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Motivations (Needs and Objectives)
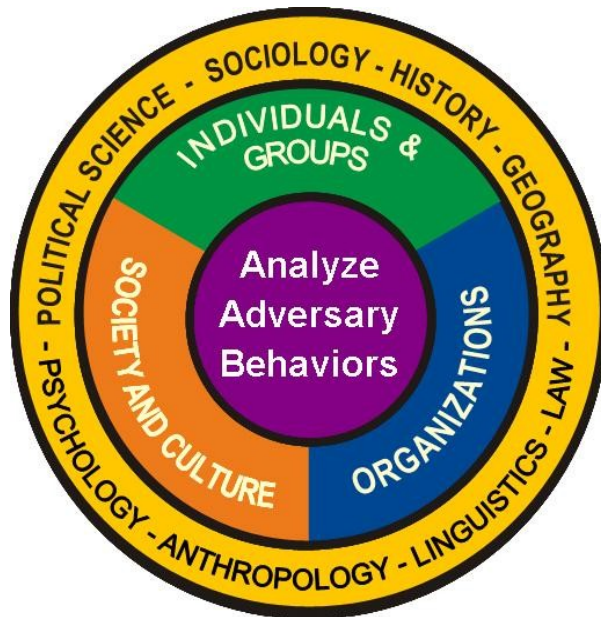
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What Have <u>We</u> Done For <u>Them</u> Today?

Develop America's Airmen Today ... for Tomorrow

Influence Operations

Kinetic · **Non-Kinetic**

Messages & Actions

Vuln, Suscept, Access

Modeling & Hypoth Testing

Social Network Analysis

Bayesian Belief Networks

Behavioral Preference/ECOA

Operational Behavior History

Situational Factors

Capabilities (perceived)

World View Values & Beliefs

Motivation Goals & Intent

Cognition

Organizational Factors

Cultural Awareness/Understanding
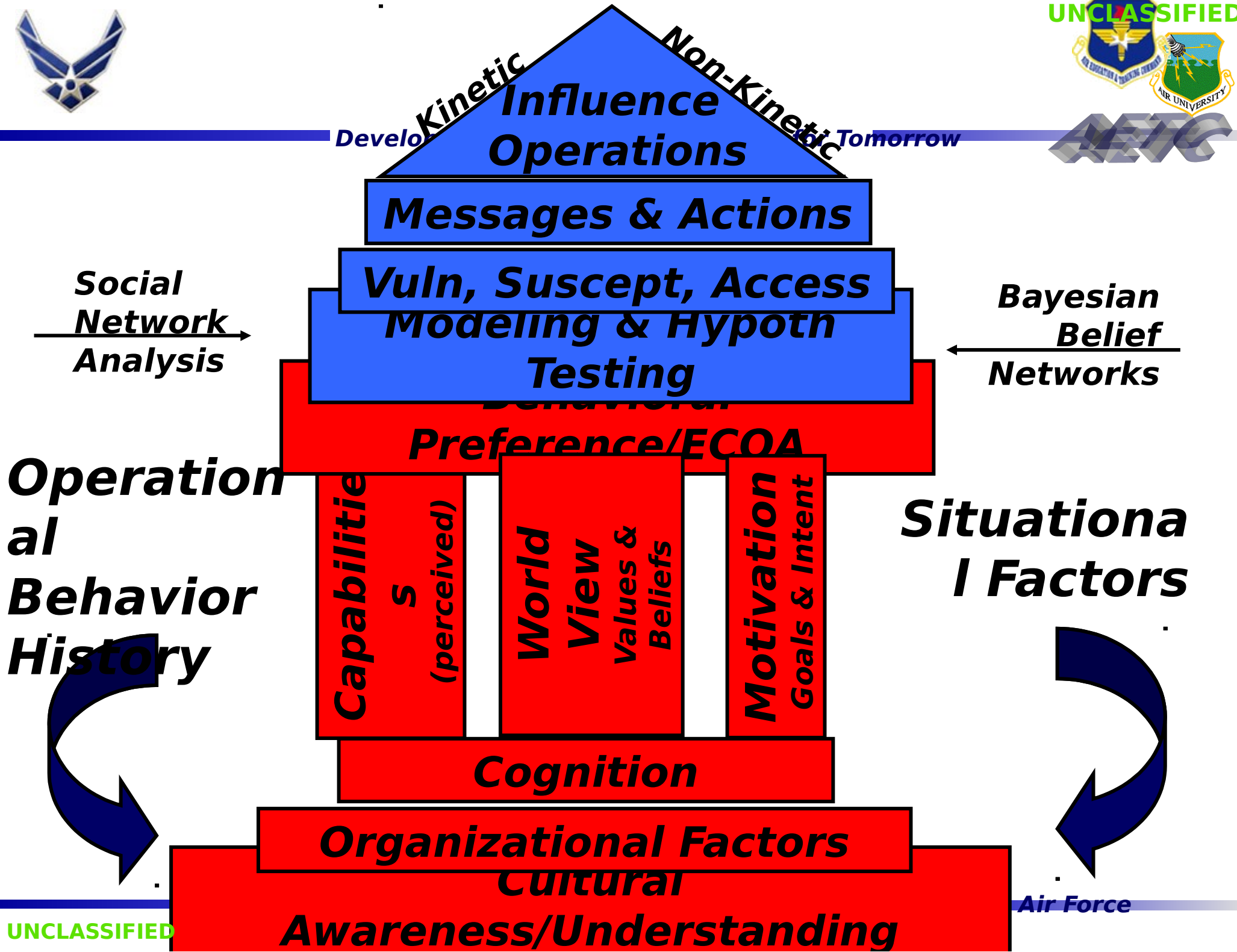
Develop America's Airmen Today ... for Tomorrow

Social Sciences*

1st Year Focus

Effective Measures

2nd Year Focus

Flow Modeling

Beginning in 2nd Year

Actionable Modeling

Statistics

VFT Modeling

Aggregation

Operations Research

Layered Networks
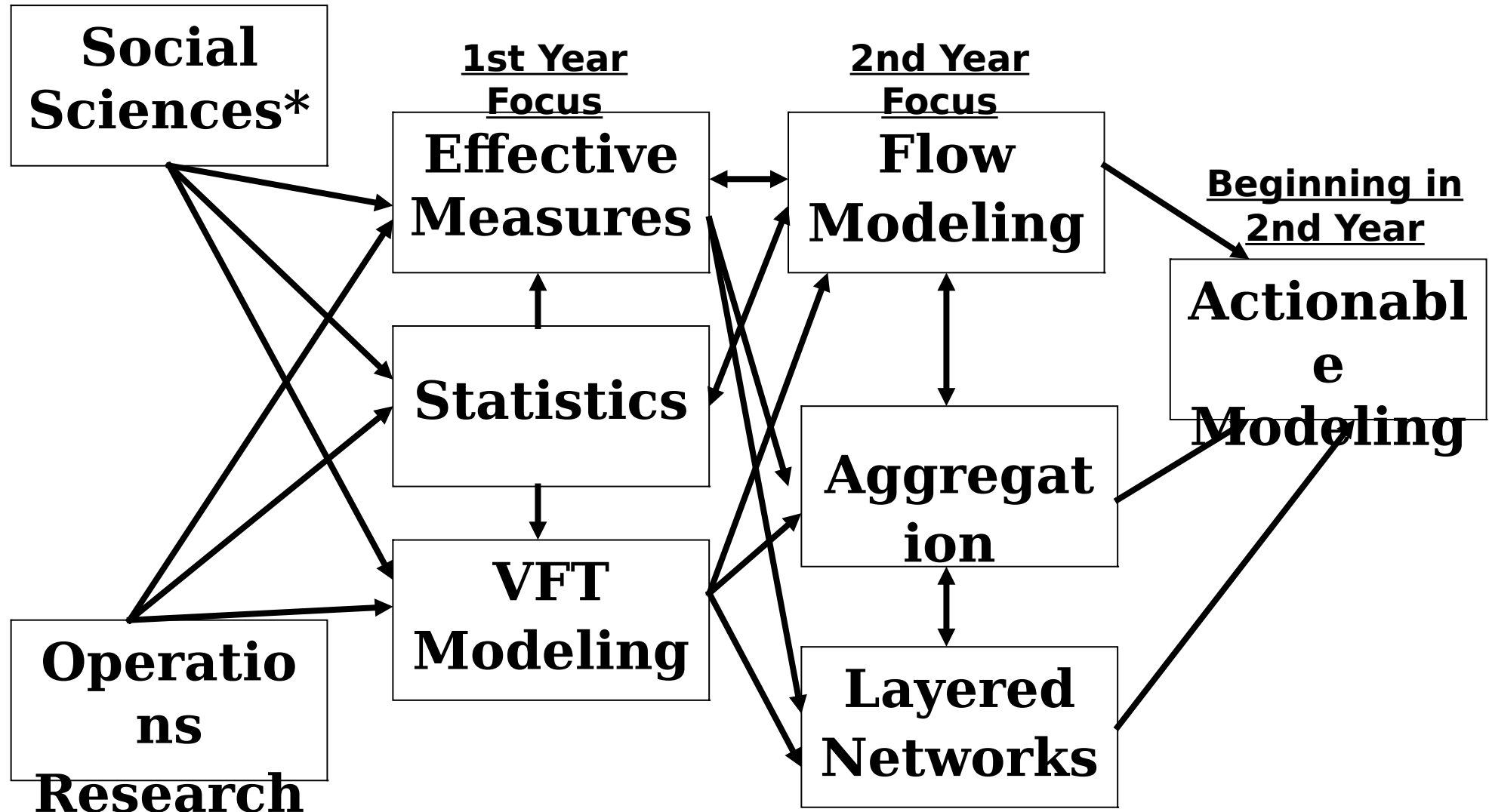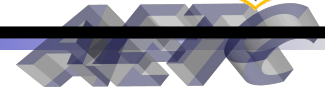
*Social Sciences = Social, behavioral, cognitive, and decision sciences data/methods/tools